Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (**Cancelled**).

2. (**Original**) A method for optimizing nutrition of an animal, the method comprising automatically monitoring the energy balance of the animal, said monitoring comprising:

1) imaging a predetermined region of interest on the animal body, and generating data indicative thereof;

ii) processing the generated data to obtain a three-dimensional representation of the region of interest;

iii) analyzing said three-dimensional representation to determine a predetermined measurable parameter indicative of a surface relief of the region of interest indicative of the energy condition of the animal.

3. (**Currently Amended**) The method according to claim 2, comprising ~~for~~ determining ~~the body~~ a body condition score (BCS) of a dairy cow, said region of interest including at least one of the following body parts: ~~the rear~~ a rear part of the cow in the vicinity of its tail head and at least one of the dorsal parts of the cow.

4. (**Previously Presented**) The method according to claim 2, wherein said imaging comprises illuminating the region of interest by structured light in the form of an array of spaced-apart light components to thereby illuminate an array of spaced-apart locations within the region of interest, and collecting light returned from the illuminated locations.

5. (**Previously Presented**) The method according to claim 2, wherein said processing of the three-dimensional representation utilizes reference data representative of the body condition scales and corresponding values of said predetermined measurable parameter indicative of the curvature of the region of interest.

6. (**Original**) The method according to claim 5, wherein said predetermined measurable parameter indicative of the curvature of the region of interest is representative of a depth of the region of interest.

7. (**Previously Presented**) The method according to claim 2, wherein said specific measurable parameter is indicative of the curvature of the surface of the region of interest with respect to a predefined reference plane.

8. (**Previously Presented**) The method according to claim 3, wherein said specific measurable parameter is indicative of the curvature of the surface of the region of interest with respect to a predefined reference plane, said reference plane being tangential to the dorsal or the rear part of the cow at the point of pin bone and tail.

9. (**Original**) The method according to claim 7, wherein said specific measurable parameter is representative of at least one of the following: a distance between the reference plane and a point in the region of interest mostly distant from said reference plane; a surface area defined by the illuminated surface locations in a plane perpendicular to said reference plane and including the mostly distant point; and at least a part of a volume defined by the illuminated surface locations and said reference plane.

10. (**Previously Presented**) The method according to claim 4, wherein said array of incident light components is produced by carrying out one of the following:

(i) passing a light beam generated by a light emitting element through a mask accommodated in the path of the emitted light beam, thereby splitting the emitted light beam into the array of the spatially separated light components;

(ii) providing an array of light emitting elements generating said array of incident light components, respectively.

Claim 11 (**Cancelled**).

12. (**Previously Presented**) The method according to claim 2, wherein the processing of said generated data comprises carrying out one of the following:

(a) determining a relative shift of the illuminated locations from a relative location of the corresponding light component in the array of light components, said shift being caused by the curvature of the illuminated surface and being indicative of said curvature;

(b) determining central points of all illuminated locations in the image of the region of interest.

13. (**Previously Presented**) The method according to claim 7, wherein the processing of said generated data comprises determining a relative shift of the illuminated locations from a relative location of the corresponding light component in the array of light components, said shift being caused by the curvature of the illuminated surface and being indicative of said curvature, said shift being representative of a distance between the respective illuminated location and said reference plane.

14. (**Previously Presented**) The method according to claim 12, wherein (a) is carried out, and said imaging of the region of interest comprises carrying out one of the following:

(i) acquiring an image of the region of interest, said shift being a distance between the illuminated location on the curved surface of the body part and a corresponding location along the trajectory of the corresponding light component; and

(ii) acquiring at least two images of the region of interest with different angles of collection of light returned from the region of interest, said shift being a distance between two illuminated locations of a matching pair of locations in the two images.

Claim 15 (**Cancelled**).

16. (**Previously Presented**) The method according to claim 2, wherein the imaging comprises acquiring a sequence of images of the region of interest by a single camera at different relative positions between the camera and the region of interest.

17. (**Original**) The method according to Claim 16, wherein said camera is a video camera.

18. (**Previously Presented**) The method according to claim 2, wherein said imaging is carried out during a movement of the animal along a predetermined path.

Claim 19 (**Cancelled**).

20. (**Previously Presented**) The method according to claim 12, wherein (b) is carried out, and the data representative of the acquired images is indicative of the existence of at least one of the following conditions: an in-coordination in the natural movement of the cow, and changes in the natural movement of the cow.

21. (**Previously Presented**) The method according to claim 3, comprising imaging an additional region of interest in the vicinity of the transverse processes of the lumbar vertebrae and the spinous processes of the lumbar vertebrae of the cow, and determining the BCS with respect to this additional region of interest, thereby enabling determination of a tendency of the energy balance change for the imaged cow.

Claim 22 (**Cancelled**).

23. (**Previously Presented**) The method of Claim 21, comprising determining a difference between the two determined BCS values, said difference being indicative of a tendency in the cow energy balance condition.

24. (**Original**) A system for monitoring the body condition of an animal, the system comprising:

an optical device including an illuminating assembly operable to produce structured light in the form of an array of spatially separated light components to thereby illuminate an array of locations within a predetermined region of interest on a body part of the animal, and a light detection assembly operable for acquiring at least one image of the illuminated body part by collecting light scattered therefrom and generating data indicative of the acquired image;

(a) a control unit connectable to the optical device, the control unit comprising a memory utility for storing reference data representative of the body condition scales and corresponding values of a predetermined measurable parameter that is indicative of the curvature of the predetermined region of interest; and a data processing and analyzing utility preprogrammed for processing the data indicative of the acquired image to calculate a value of the measurable parameter for the specific imaged animal, and analyze the calculated value with respect to the reference data to thereby determine the body condition scale of the specific animal.

25. (**Previously Presented**) The system according to claim 24, configured for monitoring a body condition score (BCS) of dairy cows, said region of interest including at least one of the following

part of the cow's body: at least one of the dorsal parts, and the rear part of the cow in the vicinity of its tail head.

26. (**Previously Presented**) The system according to claim 24, wherein the illuminating assembly has one of the following configurations:

(i) comprises a light emitting element operable to emit a light beam, and a mask accommodated in the path of the emitted light beam to split it into the array of spatially separated light components;

(ii) comprises an array of light emitting elements operable to emit the array of light components, respectively.

Claim 27 (**Cancelled**).

28. (**Previously Presented**) The system according to claim 24, wherein the detection assembly has one of the following configurations:

(i) comprises a single pixel-array detector;

(ii) comprises two pixel-array detectors.

29. (**Previously Presented**) The system according to claim 28, wherein (i) is carried out, and said detector is a video camera, the control unit comprising a frame grabbing utility.

Claim 30 (**Cancelled**).

31. (**Previously Presented**) The system according to claim 28, wherein (ii) is carried out, and said two pixel-array detectors are oriented with respect to the region of interest so as to acquire two images with different collection angles, respectively.

32. (**Previously Presented**) The system according to claim 24, wherein said data processing and analyzing utility is operable to carry out one of the following:

(i) determine a shift of each of the illuminated locations within the array of the illuminated locations caused by the curvature of the illuminated surface, said shift being indicative of said curvature;

(ii) determine central points of all the illuminated locations; and

(iii) analyze the data indicative of the images acquired during natural marching of a dairy cow to determine existence of a certain locomotion pattern or in-coordination in the cow's marching.

33. (**Previously Presented**) The system according to claim 24, wherein said shift is determined as one of the following:

(i) a distance between the illuminated location on the curved surface of the body part and a corresponding location along the trajectory of the corresponding light component;

(ii) a distance between the two illuminated locations of a matching pair of locations in the two images.

Claims 34-35 (**Cancelled**).

36. (**Previously Presented**) The system according to claim 24, wherein said predetermined measurable parameter indicative of the curvature of the region of interest is representative of a depth of the region of interest.

37. (**Previously Presented**) The system according to Claim 24, wherein said predetermined measurable parameter is indicative of the curvature of the surface of the region of interest with respect to a predefined reference plane.

38. (**Previously Presented**) The system according to Claim 25, wherein said predetermined measurable parameter is indicative of the curvature of the surface of the region of interest with respect to a predefined reference plane tangential to the rear part of the cow at the point of spin bone and tail.

39. (**Previously Presented**) The system according to Claim 37, wherein said predetermined measurable parameter is representative of at least one of the following: a distance between said reference plane and a point on the region of interest mostly distant from said reference plane; a surface area defined by the illuminated surface

locations in a plane perpendicular to said reference plane and including the mostly distant point; and at least a part of a volume defined by the illuminated surface regions and said reference plane.

40. (**Previously Presented**) The system according to claim 37, wherein said shift is representative of a distance between the respective illuminated location and said reference plane.

Claim 41 (**Cancelled**).